

DONNALLY (W^m)

al

An Opportunity for a Great National Dental Museum and Library.

By WMS. DONNALLY, D.D.S., Washington, D. C.

A plea for the acceptance of the invitation of the Army Medical Museum and Library (the National Medical Museum and Library established and maintained by the United States Government) to the dental profession to consider this institution as their National Collection of literature, specimens, etc., and to make its dental section more completely illustrate the history and condition of dentistry.

[Reprinted from the Transactions of the American Dental Association for 1895.]

presented by the author



An Opportunity for a Great National Dental Museum and Library.

BY WILLIAMS DONNALLY, D.D.S.

WE are told that long centuries before the invention of written language there lived a people whom the later Greeks called Thracians, a half-mythical race, who, after their language perished, survived in tradition as a race of bards, associated with that pre-Homeric legendary poetry in which the powers of nature were first definitely personified. While spirits were ascribed to every forest and mountain, in Thrace alone dwelt the Muses, and to their home was the first application of the word museum. Soon, however, the word was applied to a place of study,—a building devoted to science, learning, and the fine arts. The first of this kind was the celebrated Alexandrian Museum, which contained the Alexandrian Library and was “a great university, the abiding place of men of science and letters.” In the second century Athens was spoken of as “the Museum of Greece.”

The term museum dropped out of use, and the idea for which it stood was in disfavor from the fourth to the seventeenth century.

While prototypes of modern museums devoted to natural history, the fine arts, and the products of the civilization of the day undoubtedly existed among the ancients, there was nothing analogous to the museums of the present day devoted to the advancement of particular branches of science and to the development of the industrial arts. The history of museum and library runs in parallel lines, so that the museums of later times were made possible only through the development of an abundant literature, the division of science and art, each with its separate and distinct literature and its savants devoted exclusively to limited fields of research.



The idea of a great national museum of science and art was originated by Lord Bacon in his "New Atlantis," and the Ashmolean Museum at Oxford, the first of this kind, was founded in 1667 by Elias Ashmole. In 1753 the British Museum was established by act of Parliament. Now, there are over one hundred and fifty public museums in the United Kingdom, all active and useful. That these institutions have an increasing intrinsic value is illustrated by the statement of competent authority that while in 1882 the South Kensington Museum had cost the nation \$5,000,000, its value at auction on the premises was not less than \$100,000,000. All civilized nations have National Museums and Libraries in some degree commensurate with the greatness of the nation and the spirit and progress of its people. The older countries, England, France, Germany, Italy, and Japan, it must be confessed, are yet in this respect ahead of the United States and more in harmony with the spirit of their respective peoples, though the work here, under the patronage of the government, is rapidly making toward magnificent proportions, as will appear from facts to be presented later.

The "Great Exhibition" of 1851 in England and our own Centennial Exhibition in 1876, themselves great museums gathered together at short notice, were great object lessons to the people. The former was the chief feature in the industrial revolution of England, marking an epoch in the intellectual progress of English-speaking peoples, while the latter was in less degree to the people of this country a revelation of undreamed-of possibilities in their development.

The vast quantities of valuable museum material left by great expositions to the permanent museums of the respective countries in which they have been held, though valuable, form but a small proportion of the immense collections accumulated by steady growth through contributions to such of these institutions as are constantly active.

Whether or not great public Museums and Libraries are yet in the infancy of their development, they are certainly in a state of transition. Their present aims and means are rapidly transforming them into great laboratories for original investigation by students in every department of knowledge, their libraries are collections of books in every branch of learning, their halls are great "nurseries of living thoughts" for the education of the public by object lessons, and their influence goes out indirectly to remote parts through their direct educational value to the educators of the country.

So much as a brief sketch of the history and development of the museum idea, from which I turn to invite you to a closer view of their objects.

All educational methods are changing. In the Middle Ages ignorance was the rule ; now it is the exception. Learning and professional training were then open only to the opulent classes ; now we glory in "the democracy of letters" and the equality of opportunity. Then, and until much more recently, written language, cumbersome and affected by the "element of personal equation" as it is, afforded the chief means of educating. Now, this is supplemented by swifter, more direct, and more natural means, and even the more recent methods of illustrating tedious written and oral descriptions by means of diagrams, blackboard drawings, photographs, and stereopticon views are being superseded, wherever possible, by the presentation of the objects themselves, thus bringing the student into direct contact by means of the senses of touch and sight with the material substance, both in individual specimens and naturally-arranged groups. By this means more is revealed through the eye at a glance than could be taught accurately by any other means in hours. The mind is not only more readily and agreeably instructed through the sense of sight, but "to See is to Know." Hence, museums are for the education of the general public as well as for the man of science and the man of letters. Their collections are so arranged as to best educate the public,—“houses full of ideas, arranged with the strictest attention to system,”—and their laboratories and libraries are of the best to aid in original investigation and the extension of the bounds of knowledge. They are fast becoming the centers of learning where the men of greatest attainments in science will be found.

Allow me to quote freely, to show the possibilities of the museum, Professor G. Brown Goode, Assistant Secretary of the Smithsonian Institution, in charge of the United States National Museum : "It is the most powerful and most useful auxiliary of all the systems of teaching." "The museum of the future must stand side by side with the library and the laboratory as a part of the teaching equipment of the college and the university, and in the great cities co-operate with the public library as one of the principal agencies for the enlightenment of the people." "One of the saddest things in this life is to realize that in the death of the elder members of the community"—and he might have added a profession also—"so

much that is precious in the way of knowledge and experience is lost to the world." "The museum cultivates the powers of observation, and the casual visitor even makes discoveries for himself." "The proximity of a good library is absolutely essential to the usefulness of a museum." "The library is useful to the educated, the museum to the educated and uneducated alike."

Professor Huxley described the museum as "a consultative library of objects." That our National Museum bears out this description is evidenced by the fact that it is visited by more than one thousand persons per day, and exhibits in spacious halls probably four million specimens, arranged not only to attract, but to instruct; besides, it contains in storage and in laboratories immense collections for the student and experimentalist, and from these latter, by a system of exchange, other collections are enriched and specimens are supplied to the investigator wherever he may desire to use them.

While museums in their two rather vague divisions of science and art attempt to cover the whole field of human thought and interest, there is an increasing tendency to specialization, and from this we may expect a nearer approach to perfect work and a more direct influence upon the separate departments of human activity. For an example of this idea, refer to the Museum of Comparative Zoology at Cambridge,—the chief of its kind,—"founded to illustrate the history of creation as far as the present state of knowledge reveals that history," and of which a great English naturalist said "it is far in advance of similar institutions in Europe as an educational institution, whether as regards the general public, the private student, or the specialist;" or take the "Medical Museum of the Royal College of Surgeons" in London, the first in importance of the thirty museums of anatomy that have developed as parts of medical colleges, and which was for the first twelve years of its life the private collection of the famed John Hunter; or, better, let us take the magnificent Army Medical Museum and Library at Washington, the most unique of its kind in the world, as an example of the success of specialization, and we shall have reached the kernel of my theme.

Happily for you, most of the description of this institution will be in the cogent language of Dr. John S. Billings, Deputy-Surgeon General and Librarian in charge, whose keen appreciation of the ideal medical museum and library, wise administration, and herculean labor have brought to this institution universal renown and the well-deserved appreciation of the whole medical world.

He says, "At first the Army Medical Museum was limited to military medical subjects, but of late years its scope has been greatly broadened, and is now nearly the same as the Royal College of Surgeons. It includes human anatomy, physiology, pathology, somatological anthropology, instruments and apparatus, and illustrations of methods of teaching connected with special departments of practical medicine. It does not at present include hygiene or materia medica, except in their immediate relations to the military medical service. . . ." The reasons for this are that our National Museum of Hygiene is under the direction of the medical department of the Navy, and the National Museum covers the field of materia medica very thoroughly. "It is not an anatomical museum, but a medical museum. The broad field of general biology, including natural history and comparative anatomy, will ultimately be covered by the National Museum, and in our medical collection it will be quite enough to illustrate human anatomy fully, using so much of the structure of the lower animals as will be useful in explaining why certain parts of the human body are thus and so, and not otherwise. No sharp line of distinction can be drawn between the field of work of the general and that of the medical museum. So far as morphology is concerned, they must necessarily overlap somewhat, since both want a certain number of the same specimens, although using them to illustrate different points of view."

"As a rule, single specimens of abnormality or of disease have little scientific value. It is only when they are associated with others that they both furnish and receive light." "Colored drawings, casts, and models are of great value in supplementing original specimens, but they cannot wholly replace them."

"A good preparation, whether of normal or abnormal structure, but especially of the latter, is valuable, not only for what we can see in it, but also for what we overlook or misinterpret, and which our successor may see and see rightly. In this it is better than a mere description, yet the latter is equally necessary and much more easily preserved and made generally useful. Next to the preparation itself in accuracy and completeness of record is the photograph, and next to this is a good model or a careful drawing.

"In medical and surgical matters, as in most other things, we habitually think in terms of vision as interpreted by touch. Hence, in part, the importance of the so-called object-teaching, and the fact

that what the medical lecturer shows his class will usually be much better remembered and understood than what he says to it; and, while pictures and diagrams are of great assistance, they are by no means as instructive and suggestive as representations in three dimensions,—*i.e.*, models, if the thing itself is not available.

“One of the most important sections of our museum is that devoted to microscopy, including normal and pathological histology, and photomicrographic work. In the cabinets there are many thousand mounted specimens, illustrating almost every field of microscopical research, forming a very valuable series, to which additions are being constantly made, and the materials for which we are especially anxious to obtain. In connection with this section a series of cultures of chromogenic and pathogenic bacteria is kept for museum exhibits, and also to illustrate methods of work.

“We have also fitted up one large room with instruments and apparatus for anthropometry in its widest sense, including psychophysical investigation, and it is intended to make this a complete laboratory for illustrations of methods of work.

“An important feature of our National Medical Museum should be to show methods of research and of instruction for the benefit of the investigators and teachers of the country. This includes instruments and apparatus, and, to a limited extent, illustrations of the modes of using them, and of the results; it also includes diagrams, models, etc., used for illustrating lectures. For example, as soon as Koch's researches became known in this country, physicians, and especially medical teachers, who visited the museum, asked if we could show them the apparatus used by Koch and Pasteur in bacteriological work, and eagerly examined the specimens of cultures on solid media which we were able to exhibit. The anatomist comes to the museum quite as much to see the methods of mounting and preservation, as to see the specimens themselves; the physiologist does not expect to see function directly exhibited, but he does hope to find information about kymographs and constant temperature apparatus, and he wants to see whether Kühne's artificial eye is so useful for teaching purposes that he ought to get one to illustrate his lectures. Medical museums are not, as a rule, freely open to the public, nor are they collected and arranged with reference to instructing non-professional persons. The Medical Museum at Washington is the chief exception to this rule, and the public has gradually become accustomed to consider the Medical Museum as one of the

sights of Washington, to be visited by male and female, old and young, and when a stranger comes to the city and inquires what he ought to see, this museum will probably be named to him next after the National Museum. Since the collection has been moved into the new building near that devoted to the National Museum, of which it may almost be said to form a part, the number of visitors has increased rather than diminished, and it has been found desirable to consider with care some problems which this state of things has forced on the curator. That educated men and women should have some curiosity as to the structure of their own bodies, the functions of certain organs, the arrangements of parts in certain localities where they have felt pain or discomfort, or the changes which have caused death in relatives or friends, is perfectly natural and proper, and there is no objection to gratifying this curiosity to a very considerable extent."

The value of the museum can be appreciated when we consider that on June 30, 1894, it contained 32,269 specimens; of which 12,249 were pathological, 4376 anatomic, 1717 illustrative of comparative anatomy, 12,033 microscopic, and 1894 miscellaneous. The cases are so arranged that they give the best view of the museum as a whole, and so that one can find the case in which he expects to see something of special interest to himself. Then, too, the system of arrangement of specimens in the cases is such as to clearly and forcibly set forth the object of the collection and arrangement, whether the development of a disease, or the changes which take place in an organ or other part of the body.

As has already been said, the laboratory work is constantly active. Dr. Billings, when questioned upon it, said that the work was largely in bacteriology, embryology, and microscopy, and that some work had been done on the embryology of the teeth and jaws.

Mr. G. Brown Goode says, "That the proximity of a good library is absolutely essential to the usefulness of a museum will be admitted by every one." The Army Medical Museum readily meets this condition, for in the same building, which, by the way, is absolutely fireproof throughout, is what is conceded by all to be the largest and most complete medical library in the world. The success of the library is due to the able efforts and management of Dr. Billings. How rapidly it has developed is shown by the authoritative statement that in 1872, had all the public medical libraries in this country been put together, it would not have been possible to verify

from the original authorities the references given by standard English and German authorities ; but now the library is known all over the medical world, both for the immense collection of medical books, and for its enterprise in other lines.

The growth of the library is wonderful. In March, 1895, it was stated that there were 112,000 bound volumes and 180,000 pamphlets. At present there are 114,567 bound volumes and 183,778 pamphlets. The library contains three-fourths of the medical literature of the world, and nine-tenths of the medical literature of the past ten years. There are about 53,000 visitors to the museum and library annually ; besides, the library is used by over 3000 students annually. The library receives medical periodicals to the number of 1200 from all over the world and in all languages. It also receives all the reports of the state and municipal boards of health, and it has the largest collection of medical graduating theses, and continues to receive them from all parts of the world. They are of little value except from a bibliographical point of view ; but in this one respect they are quite valuable. The government appropriates the sum of \$12,000 annually for the purchase of books and pamphlets, but the library has grown largely through the donation of private collections and the gifts of individuals. I said "has grown ;" I should add, *it is still growing*.

"The value of this collection to the medical profession of the entire country, as well as to the medical and surgical department of the army, is almost beyond estimate. It affords a means of reference and research in every branch of the profession, and places at the disposal of seekers after knowledge the wisdom of the world and of its greatest savants collected for generations past."

When, upon the issue of the statement in 1872 concerning the scarcity of medical authorities in medical libraries, the condition of medical libraries in this respect became known, the medical profession of this country roused itself to the subject and began to take active steps to remedy this untoward condition of affairs, "and the Army Medical Library began to grow by accessions from gifts."

"It is to such special libraries that physicians give their books and pamphlets, and the rapid growth of the library is largely due to this cause. There is pouring into it a constant stream of literature, not only from this country, but from abroad. The result is that the library not only contains more literature than the Library of the British Museum or the National Library of France, but it covers a

wider field, represents better the medical literature, and is decidedly a better practical reference and working collection for medical purposes than either of the great libraries mentioned. The library also gets a great many books through the system of exchange with other libraries in this and foreign countries."

There are two publications which have a world-wide reputation, which are sufficient of themselves to indicate the enterprising character and far-sightedness of those in charge of the library. There is an *Index Medicus* of the current medical literature of the world which appears monthly, and at the end of the year is bound. This is prepared under the direction of Dr. John S. Billings and Dr. Robert Fletcher.

But the other publication is the greater of the two. It is an *Index Catalogue* by both subjects and authors of every bound volume and pamphlet in the library, and contains all the articles of value in the magazines, catalogued under subject heads. There are now fifteen volumes of this tremendous work, and each volume has, on an average, 1000 pages. Such an enormous expenditure of labor and patience, as well as time, could only be justified by the magnificent results. Encomiums have come from all parts of the world. Each new volume has elicited fresh praises. As far back as 1880 the Librarian of the Royal College of Surgeons of England, in speaking of this catalogue, said, "You do well, indeed, to lay down as one of the rules for its compilation that the catalogue is not for use only in the country of its origin, for it really is a magnificent present to the world at large, and one, I feel sure, from having so long known the want of such a work as regards periodical literature, which will be keenly appreciated by all into whose hands it comes."

Medical Inspector Vallin, Director of the School of the Department of Military Health, at Lyons, France, writes, "I have just looked over the eleventh volume of the admirable *Index Catalogue*, which you have been so kind as to send to me. . . . Each new volume which I receive increases my astonishment; there does not exist in the world a catalogue to be compared with it, and I scarcely understand how you have been able to conduct to its end a work so colossal. . . . Your Washington Library is, for medicine at least, the analogue of what the Alexandrian Library was for all human knowledge. I am convinced that while it will not be of the same kind, it will not render less services."

Contributors should remember that credit is given to the author

under both his name and subject-head in the Index Catalogue for every separate book, monograph, or pamphlet, but that when the article is in a magazine it is catalogued only under the subject-head. It is almost impossible to exaggerate the value of this work. It is to the world of medical books what the index of the *Dental Cosmos* is to the literature of that journal, and it saves many valuable facts which would otherwise lie buried in journal obscurity.

Notwithstanding the fact that the medical profession is divided into many specialties, each is more or less represented in the two branches of this institution, though the number of works in the library relating to dentistry is far below a creditable showing as compared with some of the other specialties, and the specimens in the museum are but the beginning of a collection. No one is to blame for this but the members of the dental profession themselves, for there is not the least distinction made by the officers of this institution between dentistry and the different specialties of medicine. Dr. Billings has expressed to me surprise that his efforts to awaken the dental profession to a realizing sense of its interests in this regard have met with but little success. Here has been prepared for our acceptance and made available for our use, without effort or expense on our part, an institution offering grand opportunities almost wholly neglected,—neglected in a way that does not comport with the dignity, aims, and boasted achievements of dentistry. It cannot but seem to some that we shrink from bringing to this great institution the evidences of our professional attainments to stand side by side in comparison with those of other branches of the healing art.

At this point your attention is called to the fact that while the Army Medical Museum and Library is the medical department of the general government, housed and maintained by Congressional appropriations and conducted by officers of the government, it is also the recognized and officially accepted National Museum and Library of the medical profession, and is as much, if not more, the interest and pride of the individual members of the profession as if it were under the control of their national organization. As a government institution, mature in experience and with an established policy, it is certain to be perpetuated under competent management. It is beyond the influence of professional jealousies and doctrinal feuds, and is based broadly and liberally on Medicine,—*i.e.*, everything pertaining to the healing art.

Thousands of the general public, as well as members of the medi-

cal and other professions, will form their impressions of the value of the attainments of the various branches of medicine and surgery by comparing here their exhibits of museum specimens, and for this reason, as well as because so much of dentistry can be illustrated with models, drawings, etc., we should make this the greatest object lesson in the world. This is certain by its nature to be the place of comparison and contrast, and, while we leave it to the medical managers to make what showing we have here, the result will be no less a just than an inevitable loss of prestige to dentistry, however sincere the efforts of the managers may be to properly set forth its progress and accomplishments. Nowhere else could we advance so well the long but faintly-sought object of impressing on army medical men and government officials the necessity and duty of providing dental surgeons for the army and navy, and in no other way could we educate the people of influence to comprehend the need of teaching and practically enforcing dental hygiene in the public schools. We have the opportunity of exercising a direct influence upon fifty thousand visitors a year, and an indirect influence upon many thousands more because of the intelligent appreciation and educating occupations of these fifty thousand people.

The quantities of museum material in single specimens and small collections hidden away in offices for a time and then cast away, lost to the profession because of the supposed want of a safe depository, where their value would be increased by association as parts of a complete series, would be of value to the profession and student of dentistry if sent here for preservation and exhibition. Besides, such collections and exhibitions cultivate observation and foster original research among both graduate and undergraduate students, and afford material for teaching and laboratory use in the dental schools of the country.

While this is a purely medical institution, it is one of the several scientific departments of the government, all of which work in harmony, each limited to its special field as far as practicable and supplementary to the others.

The opportunity for research lacking in one is supplied by the others; for instance, the Medical Museum has no department of *materia medica*, this being abundantly provided for by the great National Museum with 3368 exhibited specimens, 2086 duplicate and study specimens, with illustrations in colored plates and photographs. Again, in the Medical Museum comparative anatomy is lim-

ited by specialization, while in the National Museum the department of mammals covers the general field of comparative anatomy, very fully illustrating the development, general characteristics, and macroscopic structure of the teeth of the lower animals. The other departments of the National Museum are scarcely less interesting and instructive.

If we claim in sincerity that dentistry is founded in its principles and practice on science and art, we should seek its development along the same lines and in company with the collateral sciences. Whether our rightful position is regarded as an independent profession, a specialty of medicine, or a branch of the healing art apart from the recognized branches of medicine, there can be no question as to the prestige we would gain for dentistry if we would but build with wisdom and deliberation for the future, as we work with zeal for present objects, on the opportunity here offered for friendly competition with the specialties of medicine with which dentistry stands equal in the scientific departments of the government.

Never was there such an opportunity freely offered a profession to safely and certainly perpetuate the fame and effect of its achievements, to give it a higher place among the learned callings, to acquaint the professions and the general public with its acquirements, and to secure to it a depository of all things of present or future historical and educational value,—a depository already famed as the richest in medical lore, and further enhanced by its unequaled Index Catalogue.

In closing I am constrained, by love of our profession, zeal for the advancement of its every possibility, and pride in the extending scope of its achievements, to earnestly urge you to consider the opportunity afforded us by this National Medical Museum and Library, seconded by the hearty good will of its managers, and, incidentally, by the medical profession, *to accumulate, preserve, and exhibit, at government expense*, ample stores of literature and museum specimens to illustrate our history, progress, and attainments, and to evidence as we can in no other way our claim to the attributes of a liberal profession. As a means to this end you are urged to consider the invitation of Dr. Billings to formally adopt this government museum and library as your own National Dental Museum and Library.

